In the Specification

Please delete the paragraph beginning on page 3, line 23, and replace it with the following paragraph:

Further with respect to Fig. 1, all convolution contributions of each point or vertex lying within the ROI are pre-calculated and stored in a matrix. That is, the table lookup comprises calculations for each and every point lying within the ROI. For all other points outside the ROI that are not contributing to the polygon, e.g., those points beyond the left and bottom boundaries of the ROI, the convolution values of such points are equal to zero. The convolution of the polygon, with the kernel, is then calculated by summing the contributions of each and every contributing pre-calculated, stored sector lying within the ROI. However, in so doing, it is required that each of these contributing pre-calculated, stored sectors be located within the ROI table lookup, and then its convolution contribution is retrieved for the summation of convolution of the polygon. This task is not only time consuming and tedious, but it also requires a sufficient amount of memory and storage capacity.

Please delete the paragraph beginning on page 7, line 27, and replace it with the following paragraph:

In a second aspect, the invention is directed to a method of performing model-based optical proximity correction by providing a first ROI having an interaction distance and locating at least one polygon within the first ROI. At least one cut line is then located

across at least one lateral edge of the polygon, whereby such cut line comprises a plurality of sample points representative of a set of vertices within the first ROI. An angular position of the cut line across the lateral edge of the polygon is determined, followed by determining first and second portions of the cut line residing on opposing sides of an intersection between the cut line and the lateral edge of the polygon. A second, new ROI is then provided by extending the first ROI beyond its interaction distance based on the angular position, and the first and second portions of the at least one cut line residing on the opposing sides of the intersection. This second ROI is ultimately for use in correcting for optical proximity. The method may further include locating within the first ROI a plurality of cut lines across the at least one lateral edge of the at least one polygon and providing the second ROI by extending the first ROI a plurality of times beyond its interaction distance based on the plurality of cut lines to generate a plurality of new regions of interest.

Please delete the paragraph beginning on page 13, line 17, and replace it with the following paragraph:

Step 1005 – Get first Cutline. Locate a polygon within the ROI and generate at least one cut line across at least one lateral edge of such polygon. The polygon may be composed of multiple segment lines that are defined by a set of user defined rules whereby at least one cut line is generated across at least one segment of the polygon. Alternatively, multiple cut lines are generated across a single segment or multiple segments of the polygon.

Please delete the paragraph beginning on page 18, line 7, and replace it with the following paragraph:

For example, as shown in Figs. 4A-B, only portions B1 and C1 of polygons B and C, respectively, reside within the original ROI 10. Polygon A resides outside of the original ROI 10, and as such, any convolution contribution ~~there from~~therefrom would not be included in the original ROI 10 for point P alone. However, in the newly expanded ROI 30 of the invention, increased portions of both polygons B and C, namely portions B2 and C2, now reside within ROI 30, as well as portions of polygon A residing within the expanded ROI 30 as shown in Fig. 4B, and as such additional convolution contribution is provided from these additional polygons and increased portions of preexisting polygons.

Please delete the paragraph beginning on page 19, line 14, and replace it with the following paragraph:

With the present invention, the time needed to calculate convolution contribution of the N number of sample points along the single cut line is proportional to (N)(u)(ID)(ID+d) + (v)(ID)(ID+d'), and as such, is significantly less than the time ~~require~~required for conventional methods, wherein d and d' can be d1, d2, or any user defined number. This is because expansions d1 and/or d2, alone and/or combined, are significantly less in dimension that a dimension of the original ROI 10, while still capturing several new sample points or vertices, e.g., $N >= 2$. Further, as expansions d1 and/or d2 are preferably relatively small expansions of the ROI, but greater than zero, the savings of time for the

convolution calculation of the invention is a function of $(v)(N-1)(ID^2)$. In accordance with the invention, the execution time of the invention will be more efficient as long as the condition $d/ID < (N-1)(v)/(N)(u+v)$ is satisfied, which generally is satisfied as a result of the table lookup time for determining "u" is fast.